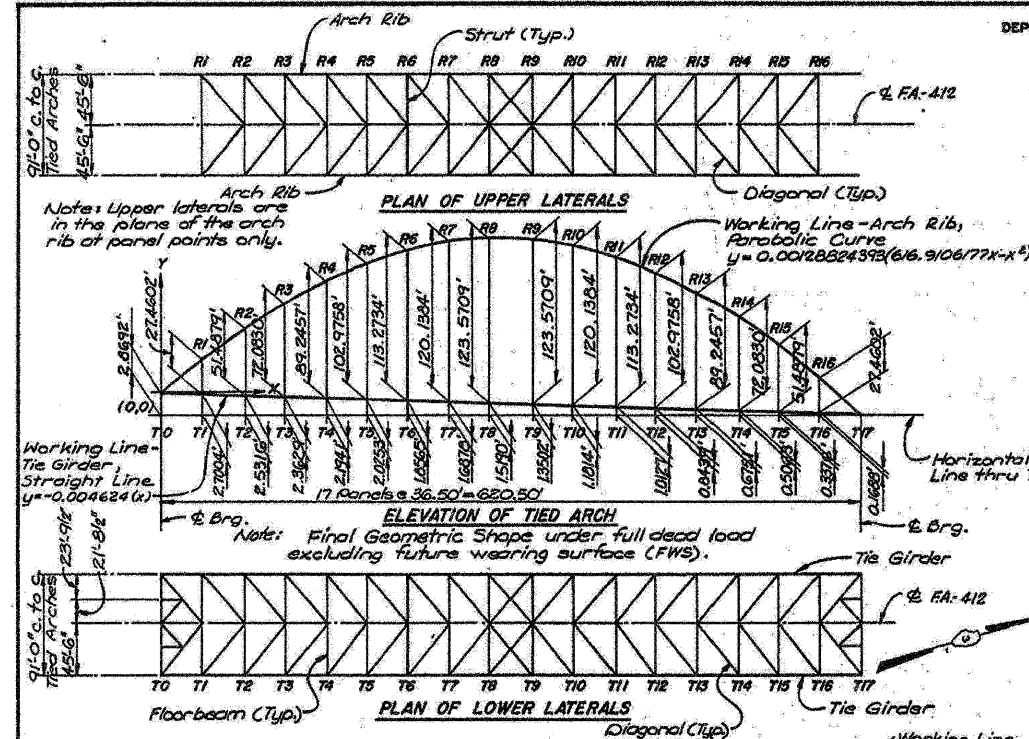


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA-412	50-4B (F&E)	LASALLE	26	5
FED. ROAD DIST. NO.	ILLINOIS PROJECT (BF-412-418)			



ARCH GEOMETRY - TOTAL DEAD LOAD (EXCLUDING FWS)

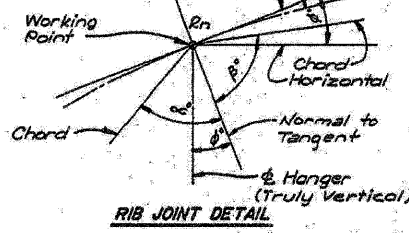
WORKING POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEVATION OF RIB N.P. (FT.)	ANGLE α°	ANGLE β°	ANGLE θ°	MEMBER	CHORD LENGTH (FT.)	WORKING POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEV. OF TIE W.P. (FT.)	MEMBER	LENGTH (FT.)
T0	0.0	515.187	--	--	--	T0 - R1	45.597	T0	0.0	515.187	T0 - R1	45.597
R1	36.5	542.478	88.2327	88.1529	35.0185	R1 - R2	43.606	T1	36.5	515.018	T1 - R2	27.460
R2	73.0	568.537	88.0716	87.9896	31.2430	R2 - R3	41.827	T2	73.0	514.849	T2 - R3	51.488
R3	109.5	593.763	87.8075	87.8261	27.1399	R3 - R4	40.282	T3	109.5	514.680	T3 - R4	72.083
R4	146.0	608.763	87.7854	87.6668	22.7128	R4 - R5	38.938	T4	146.0	514.512	T4 - R5	89.246
R5	182.5	617.310	87.5972	87.5300	17.9794	R5 - R6	37.879	T5	182.5	514.343	T5 - R6	102.976
R6	219.0	627.407	87.4695	87.4170	12.9789	R6 - R7	37.109	T6	219.0	514.174	T6 - R7	113.273
R7	255.5	634.144	87.3735	87.3402	7.7694	R7 - R8	36.646	T7	255.5	514.005	T7 - R8	120.138
R8	292.0	637.407	87.3181	87.3073	2.4277	--	--	T8	292.0	513.846	T8 - R8	123.571
R9	328.5	637.793	87.3085	87.3215	2.3564	R8 - R9	36.500	T9	328.5	513.687	T9 - R9	123.571
R10	365.0	635.637	87.3460	87.3815	8.2889	R9 - R10	36.677	T10	365.0	513.499	T10 - R10	120.138
R11	401.5	626.804	87.4264	87.4807	13.4810	R10 - R11	37.172	T11	401.5	513.330	T11 - R11	113.273
R12	438.0	616.337	87.5428	87.6111	18.4575	R11 - R12	37.971	T12	438.0	513.161	T12 - R12	102.976
R13	474.5	602.239	87.6846	87.7618	23.1618	R12 - R13	39.057	T13	474.5	512.993	T13 - R13	89.246
R14	511.0	584.507	87.8420	87.8237	27.5580	R13 - R14	40.406	T14	511.0	512.824	T14 - R14	72.083
R15	547.5	564.143	88.0056	88.0876	31.6287	R14 - R15	41.993	T15	547.5	512.655	T15 - R15	51.488
R16	584.0	539.947	88.1687	88.2482	35.3724	R15 - R16	43.732	T16	584.0	512.486	T16 - R16	27.460
T17	620.5	512.318	88.3256	--	38.7986	R16 - T17	45.778	T17	620.5	512.318	--	--

ARCH GEOMETRY - FOR FABRICATION

WORKING POINT	ANGLE α°	ANGLE β°	ANGLE θ°	MEMBER	CHORD LENGTH (FT.)	MEMBER	LENGTH (FT.)	PANEL POINT	STRAND LENGTH (FT.)
T0	--	88.3124	38.4755	T0 - R1	45.597	T0 - T1	38.487	1	15.175
R1	88.2308	88.1551	35.0185	R1 - R2	43.627	T1 - T2	38.487	2	39.518
R2	88.0694	87.9916	31.2430	R2 - R3	41.846	T2 - T3	38.488	3	60.122
R3	87.9055	87.8279	27.1399	R3 - R4	40.280	T3 - T4	38.489	4	77.418
R4	87.7446	87.6711	22.7124	R4 - R5	38.955	T4 - T5	38.489	5	91.287
R5	87.5959	87.5310	17.9794	R5 - R6	37.895	T5 - T6	38.489	6	101.727
R6	87.4685	87.4176	12.9789	R6 - R7	37.126	T6 - T7	38.488	7	108.745
R7	87.3729	87.3407	7.7694	R7 - R8	36.662	T7 - T8	38.487	8	112.171
R8	87.3176	87.3073	2.4277	--	--	--	--	9	112.171
R9	87.3086	87.3206	2.3564	R8 - R9	36.517	T8 - T9	38.487	10	108.745
R10	87.3469	87.3805	8.2889	R9 - R10	36.684	T9 - T10	38.487	11	101.727
R11	87.4276	87.4796	13.4810	R10 - R11	37.188	T10 - T11	38.488	12	91.287
R12	87.5499	87.6093	18.4575	R11 - R12	37.987	T11 - T12	38.489	13	77.418
R13	87.6864	87.7598	23.1618	R12 - R13	39.074	T12 - T13	38.489	14	60.122
R14	87.8440	87.9212	27.5580	R13 - R14	40.424	T13 - T14	38.489	15	39.518
R15	88.0081	88.0852	31.6287	R14 - R15	42.012	T14 - T15	38.488	16	15.175
R16	88.1711	88.2461	35.3724	R15 - R16	43.812	T15 - T16	38.487	16	15.175
T17	88.3277	--	38.7986	R16 - T17	45.800	T16 - T17	38.487	16	15.175

RIB CHORD OFFSETS - FOR FABRICATION

CHORD	OFFSET TO CHORD (FT.)					
	POINT 1	POINT 2	POINT 3	POINT 4	POINT 5	POINT 6
T0 - R1	11.592	0.258	23.056	0.344	34.391	0.258
R1 - R2	11.083	0.269	22.048	0.359	32.886	0.270
R2 - R3	10.619	0.281	21.135	0.375	31.542	0.281
R3 - R4	10.205	0.292	20.321	0.389	30.346	0.292
R4 - R5	9.851	0.302	19.627	0.402	29.328	0.302
R5 - R6	9.560	0.310	19.062	0.414	28.508	0.310
R6 - R7	9.339	0.317	18.640	0.422	27.902	0.317
R7 - R8	9.194	0.321	18.359	0.428	27.525	0.321
R8 - R9	9.128	0.322	18.256	0.430	27.386	0.322
R9 - R10	9.142	0.320	18.305	0.427	27.489	0.321
R10 - R11	9.236	0.316	18.513	0.422	27.831	0.316
R11 - R12	9.408	0.309	18.875	0.413	28.401	0.309
R12 - R13	9.654	0.301	19.384	0.401	29.191	0.301
R13 - R14	9.968	0.291	20.028	0.388	30.189	0.291
R14 - R15	10.344	0.280	20.794	0.373	31.350	0.280
R15 - R16	10.775	0.268	21.669	0.358	32.681	0.268
R16 - T17	11.258	0.257	22.641	0.342	34.156	0.257

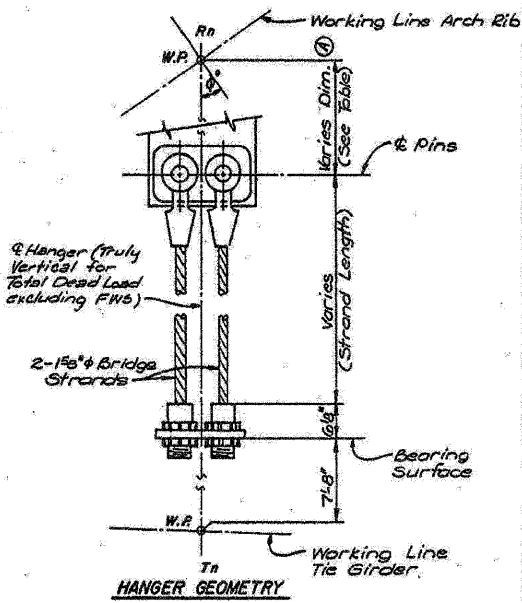
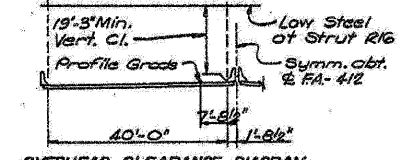


HANGER ASSEMBLIES

PANEL POINT	RIB TIE DIST. (FT.)	STRAND LENGTH (FT.)	STEEL	CONC.	TOTAL
1	27.460	15.200	0.007	0.020	0.027
2	51.488	39.394	0.024	0.052	0.076
3	72.083	60.239	0.038	0.079	0.117
4	89.246	77.569	0.051	0.100	0.151
5	102.976	91.466	0.061	0.118	0.179
6	113.273	101.929	0.070	0.132	0.202
7	120.138	108.961	0.076	0.140	0.216
8	123.571	112.384	0.079	0.144	0.223

PANEL DIMENSION

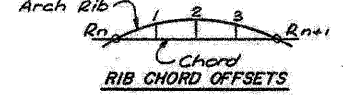
PANEL POINT	DIMENSION
R1	4' - 1"
R2	3' - 11"
R3	3' - 8"
R4	3' - 6"
R5	3' - 4"
R6	3' - 2"
R7	3' - 0"
R8	3' - 0"
R9	3' - 0"
R10	3' - 0"
R11	3' - 2"
R12	3' - 4"
R13	3' - 6"
R14	3' - 8"
R15	3' - 11"
R16	4' - 1"



① Vertical distance from W.P. of rib to W.P. of tie under total dead load excluding FWS.
② Length under total dead load excluding FWS.
③ Modulus of elasticity for strand elongation assumed = 24,000,000 psi. See Special Provisions.

TIED ARCH SPAN
ARCH GEOMETRY
FA-412 OVER ILLINOIS RIVER
SECTION 50-4B(F&E) PROJECT EBF-412-4(6)
STA. 863+16.00 (FA-412) LASALLE CO.

DESIGNED - C. Wieszorek
CHECKED - G. J. DEE
DRAWN - G. J. DEE
CHECKED - C. Wieszorek



NOTE: DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS.

DESIGNED -	VH
CHECKED -	HMA
DRAWN -	VH
CHECKED -	HMA

FOR INFORMATION ONLY

benesch
engineers · scientists · planners
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 3938.05

SHEET NO. S5	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	39	[(50-4B)BR]I	LASALLE	12	11
SHEETS S6	CONTRACT NO. 66A34		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT		

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